


EV market trends and outlook

Shift Up a Gear

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Analysis to help you understand the future of energy and transport



Solar



Wind



Power and Utilities



Gas



Carbon Markets & Climate



Energy Smart Technologies



Storage



Electric Vehicles



Mobility and Autonomous Driving



Frontier Power



Emerging Technologies



Americas



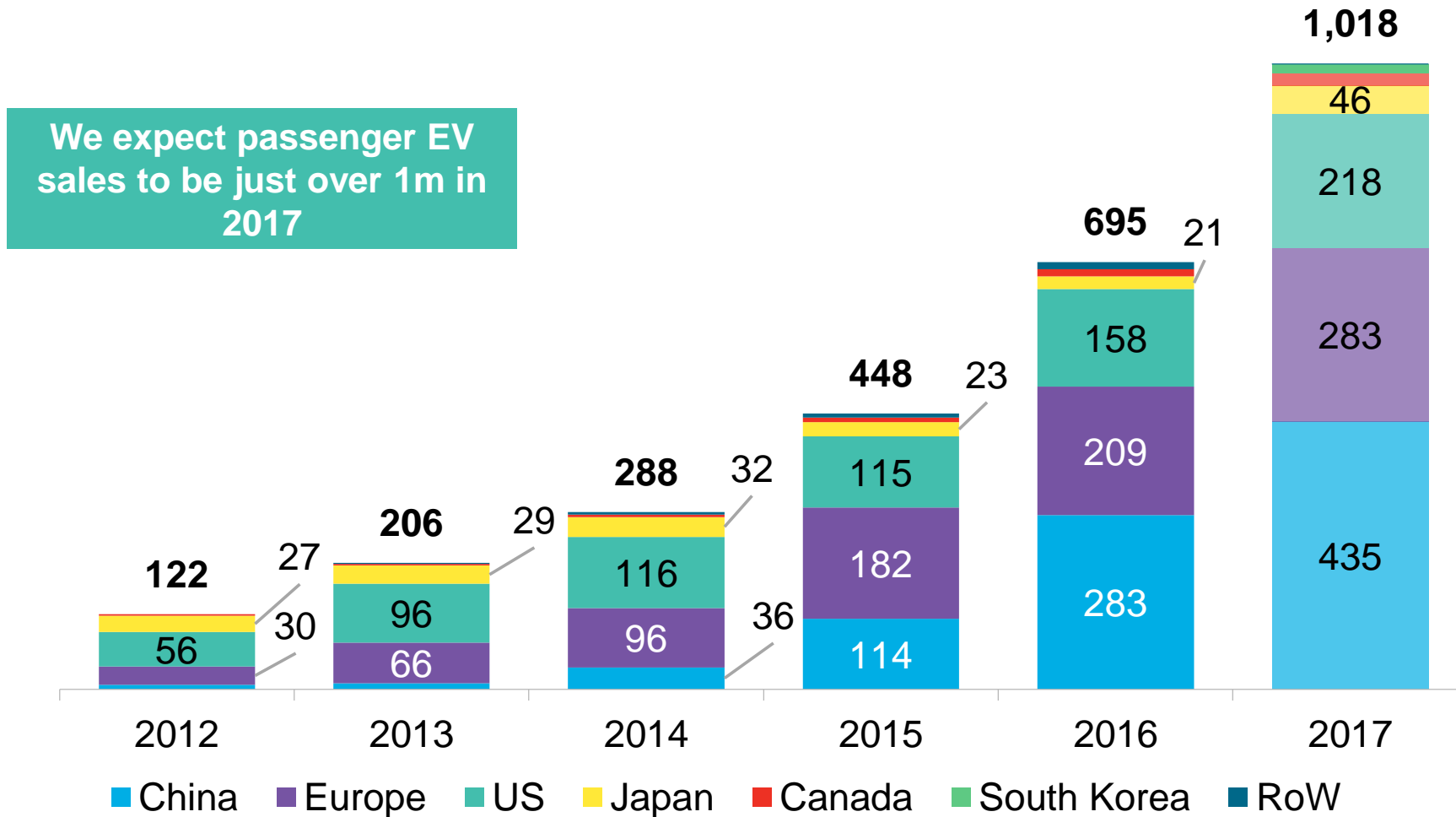
Europe, Middle East & Africa



Asia Pacific

Global EV sales by region

Thousand units



Source: Bloomberg New Energy Finance, Marklines, automakers, vehicle registration agencies Note: EV sales include BEV and PHEV sales. China data exclude low-speed EV sales and commercial vehicles.

Countries where EVs were above 1% of total passenger vehicle sales

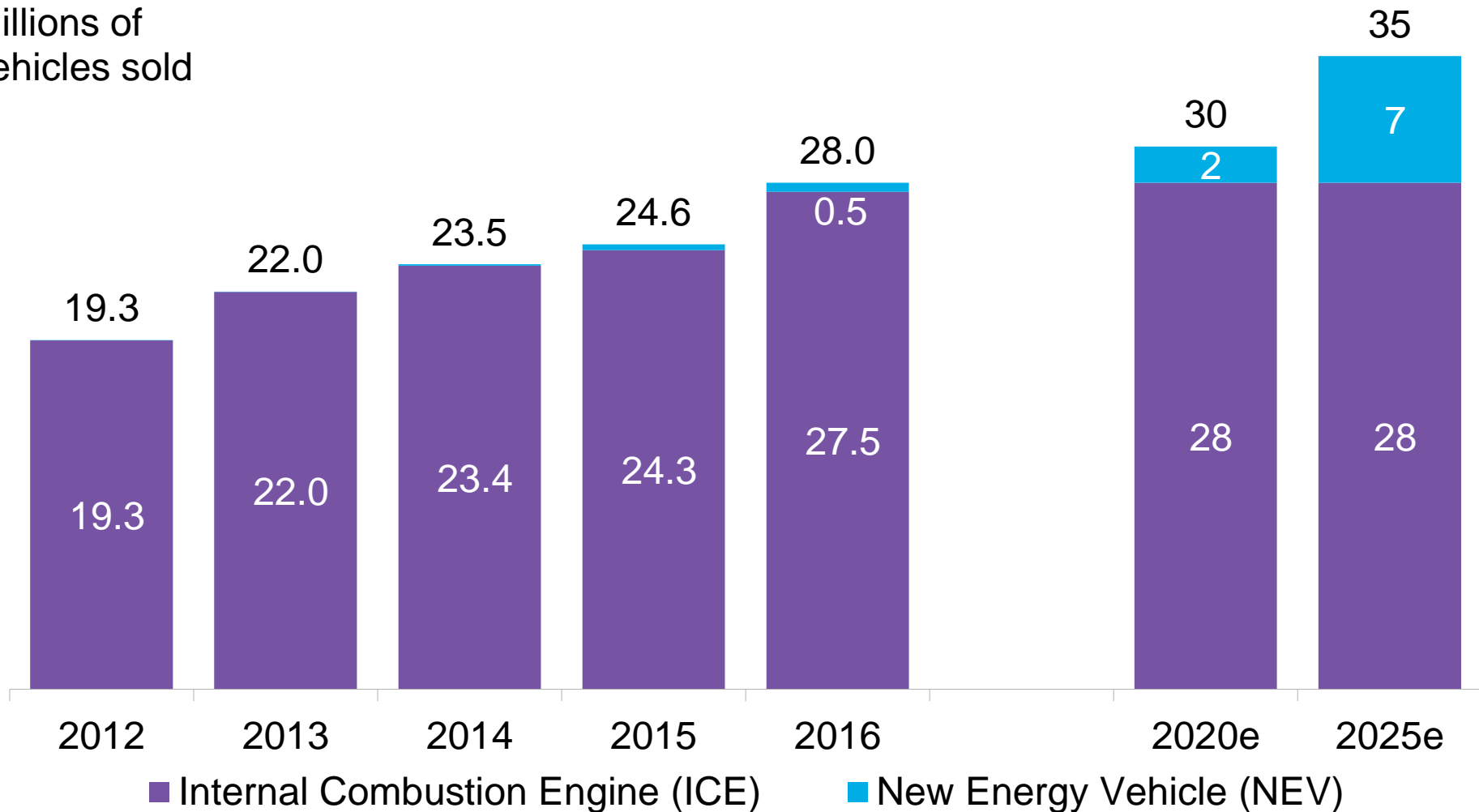


Year	Country
2014	
2015	
2016	
1Q 2017	

Source: Bloomberg New Energy Finance

China's vehicle sales according to the recent 2025 plan

Millions of vehicles sold



Source: China Automotive Information Net, Bloomberg New Energy Finance

Electric vehicle model availability

Number of models available

250

Examples of automakers' stated electrification targets

VW Group 2.5 million annual EV sales by 2025

Daimler 15%-25% of annual sales being EVs by 2025

Honda 15% of annual sales being BEVs by 2030

150

100

50

0

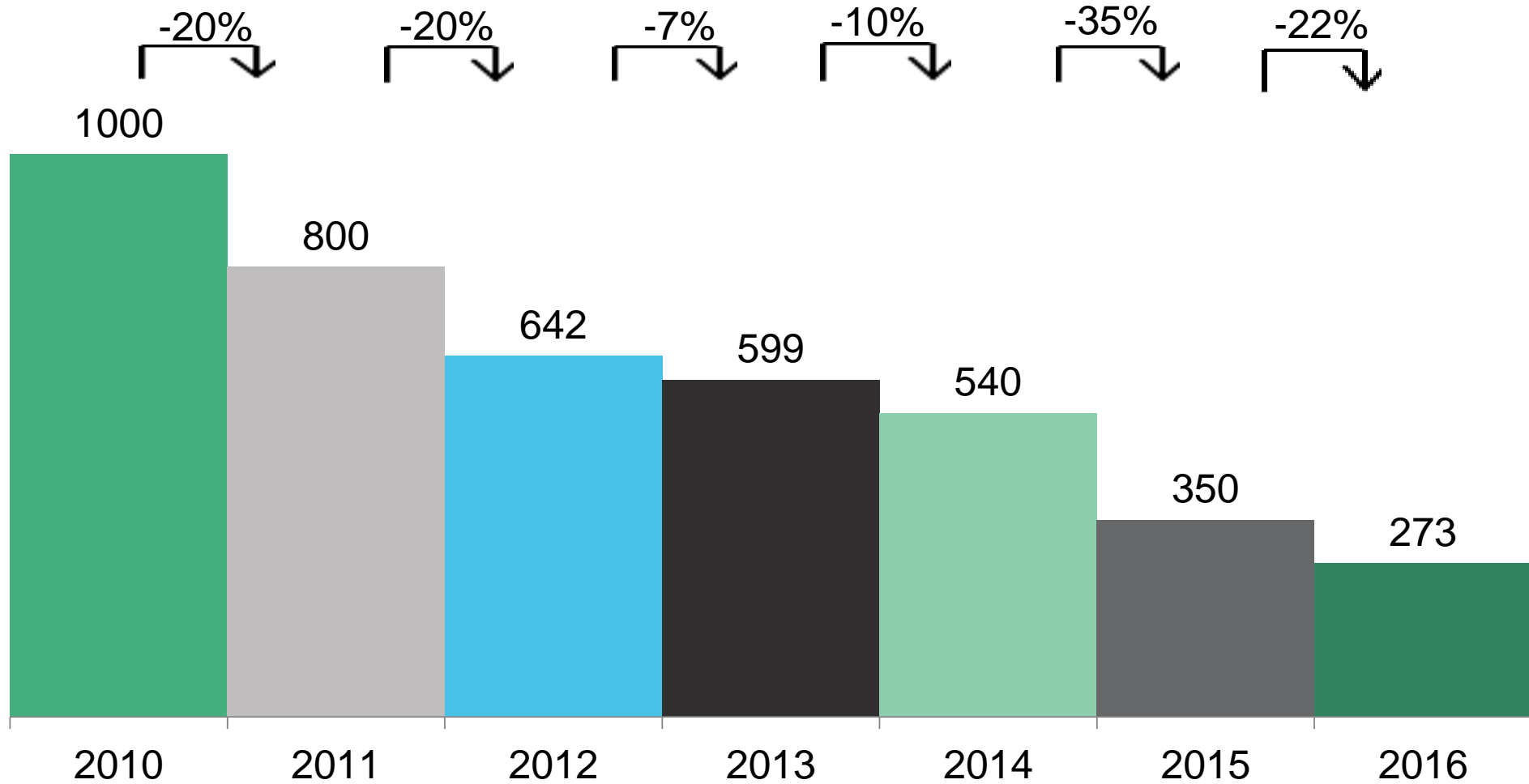
2012 2013 2014 2015 2016 2017 2018 2019 2020 2021

FCV
PHEV
BEV

Source: Bloomberg New Energy Finance

BNEF 2016 battery pack price survey results, 2010-2016

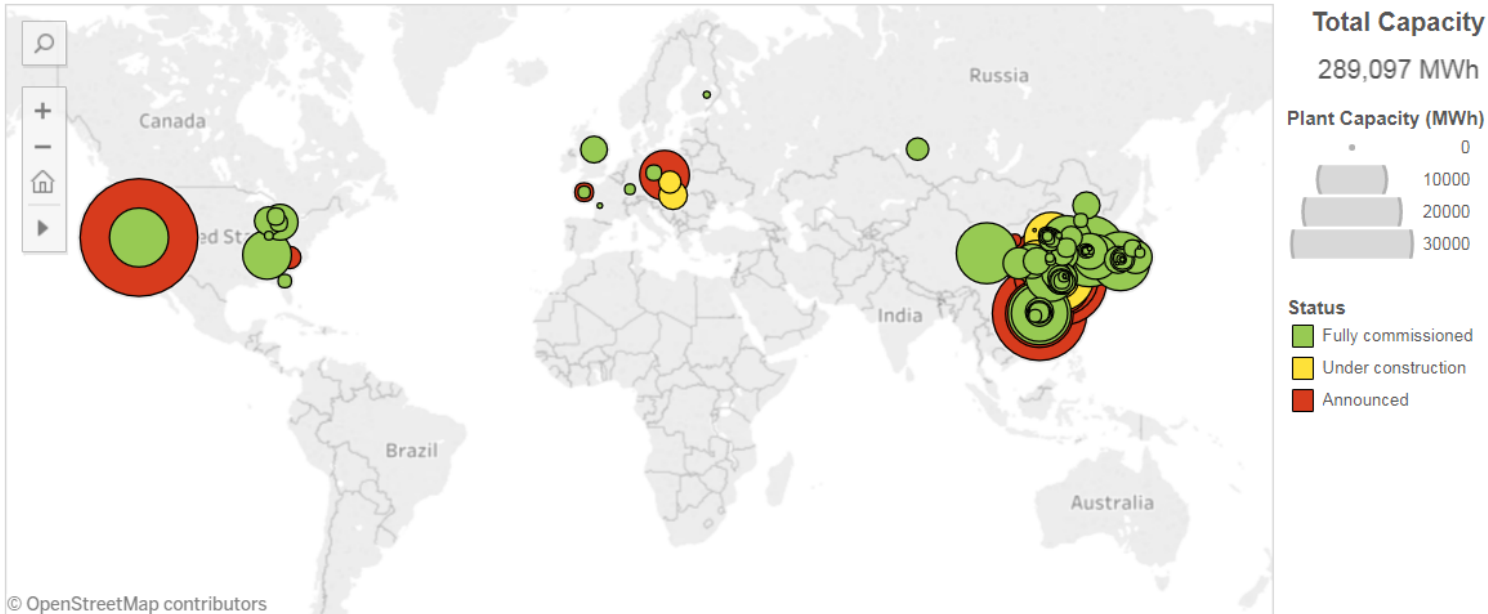
(\$ per kWh)



Source: Bloomberg New Energy Finance Note: This includes cells plus pack prices and is an average of BEV and PHEV prices. For years where there were two surveys, the data in this chart is an average for the year.

The supply chain is maturing

Global EV lithium-ion battery manufacturing capacity

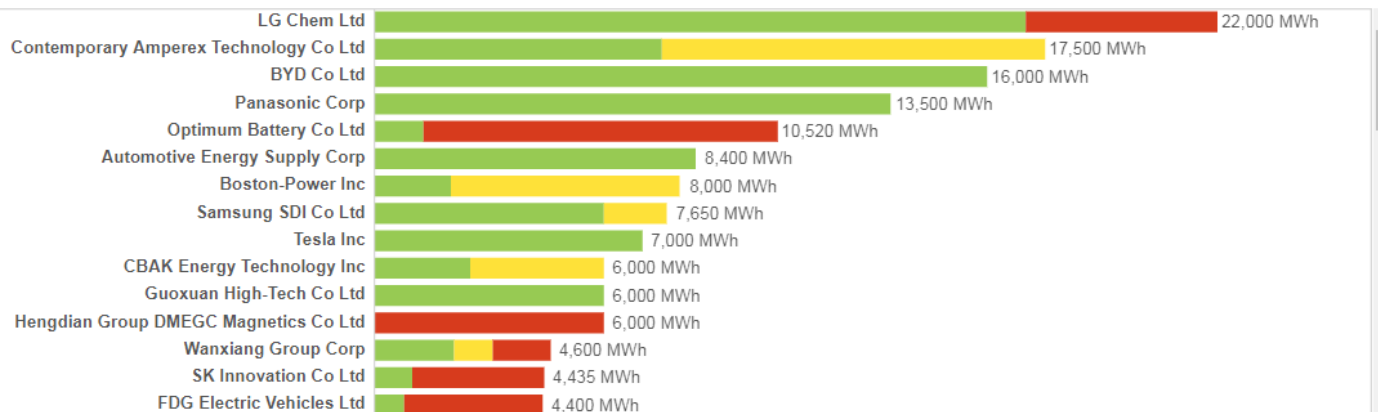


2017 capacity:
90 GWh/year

2021 planned* capacity:
290 GWh/year

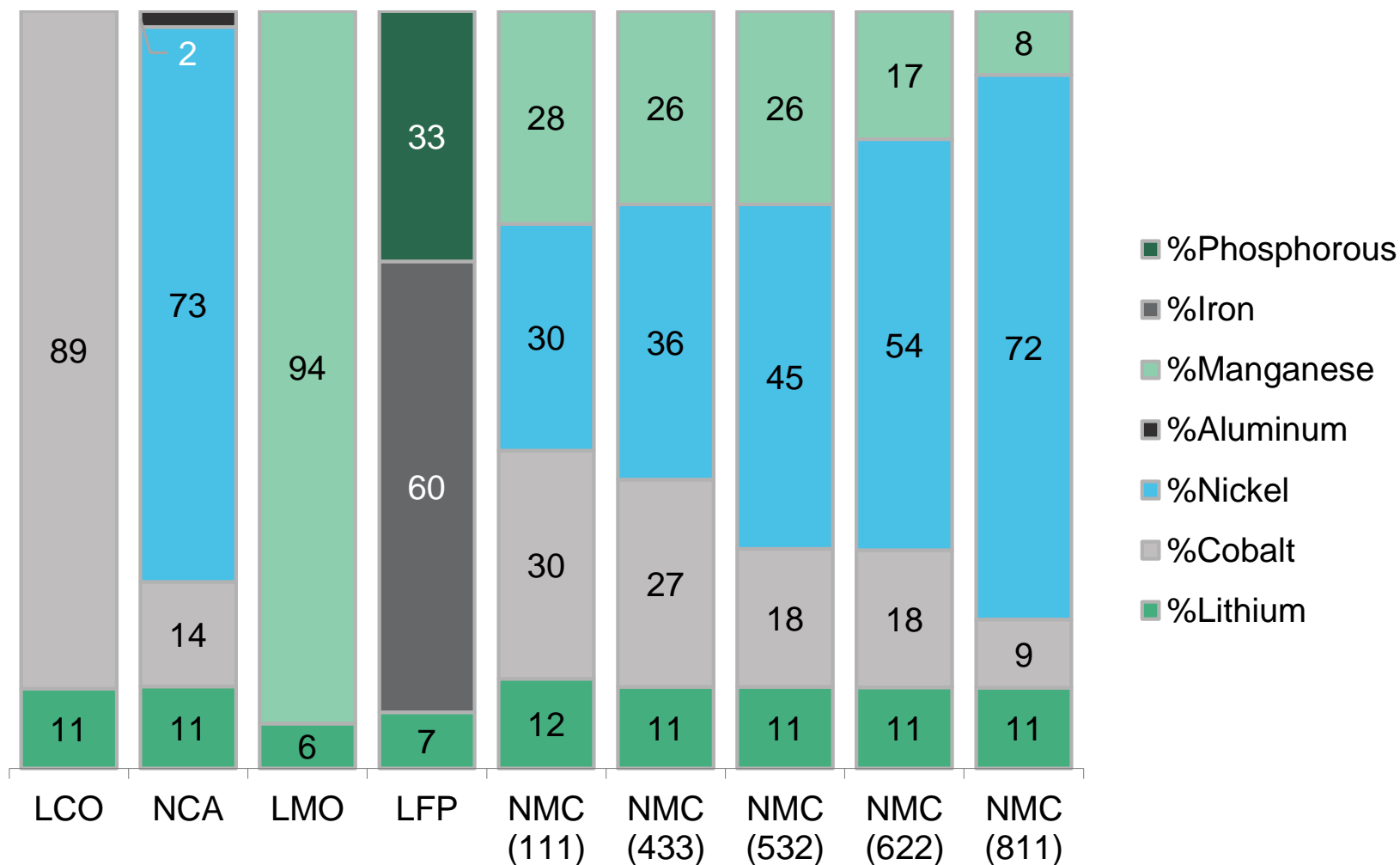
Capacity by manufacturer (MWh)

Select the "+" sign to view the capacities of the individual plants and plant phases



Source: BNEF battery manufacturing database.
*Planned = announced or under construction

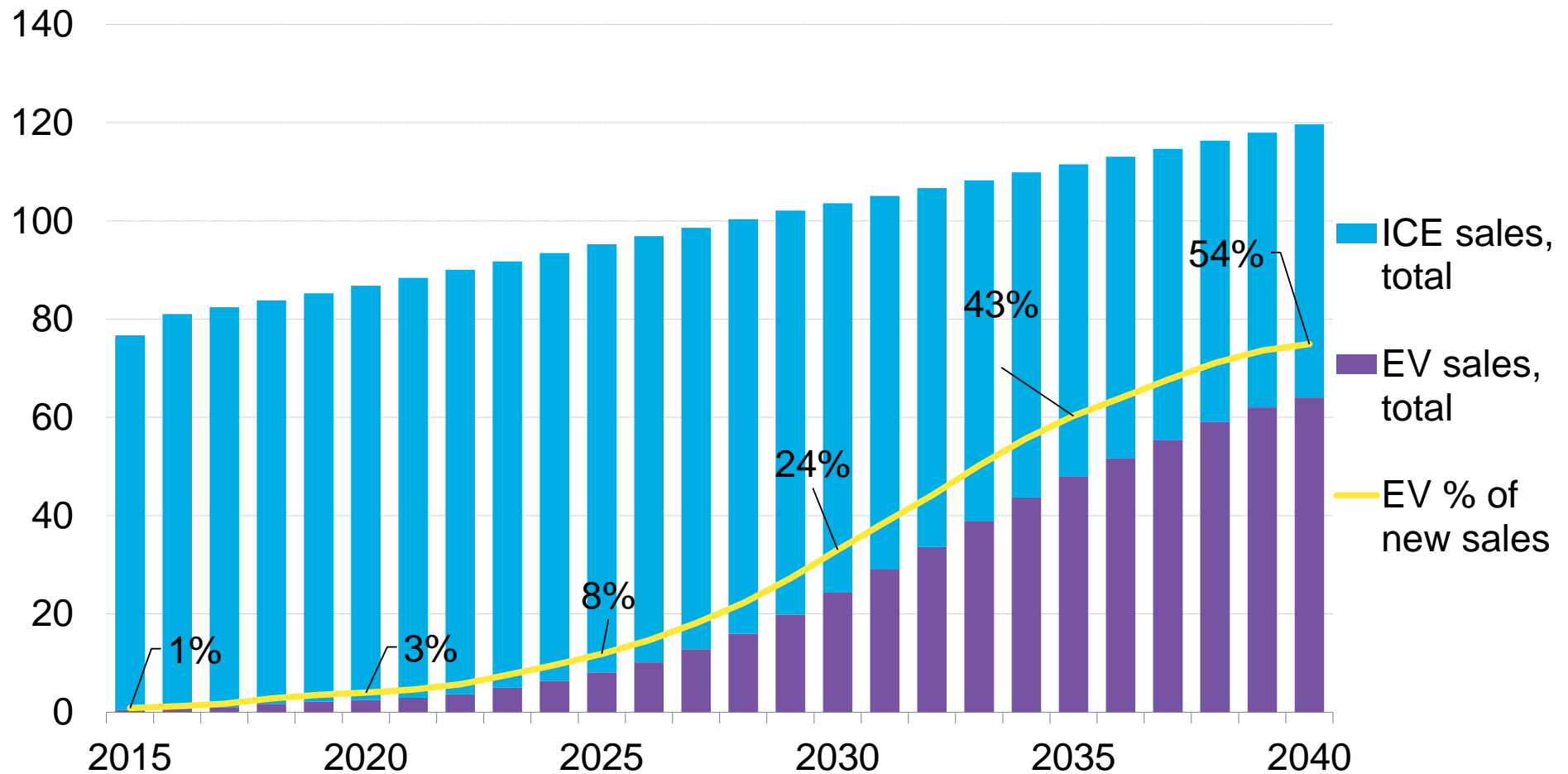
Metal content of lithium-ion batteries by cathode chemistry, % of total metal content by weight per kWh



Source: Bloomberg New Energy Finance Note: The numbers associated with NMC represent the ratio of Nickel:Manganese:Cobalt in each particular blend.

Annual global light duty vehicle sales

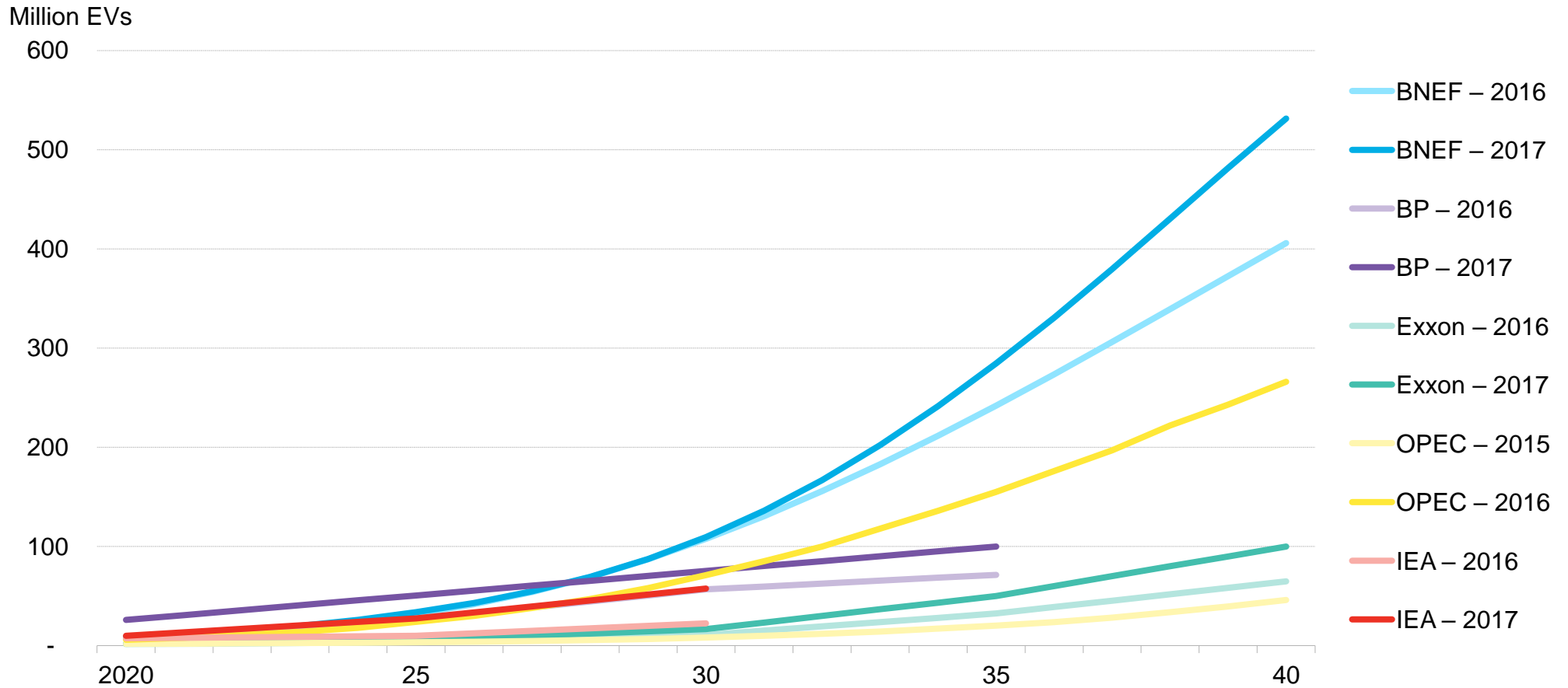
million cars per year



Source: Bloomberg New Energy Finance. Note: ICE sales include traditional hybrids.

EV forecasts then and now

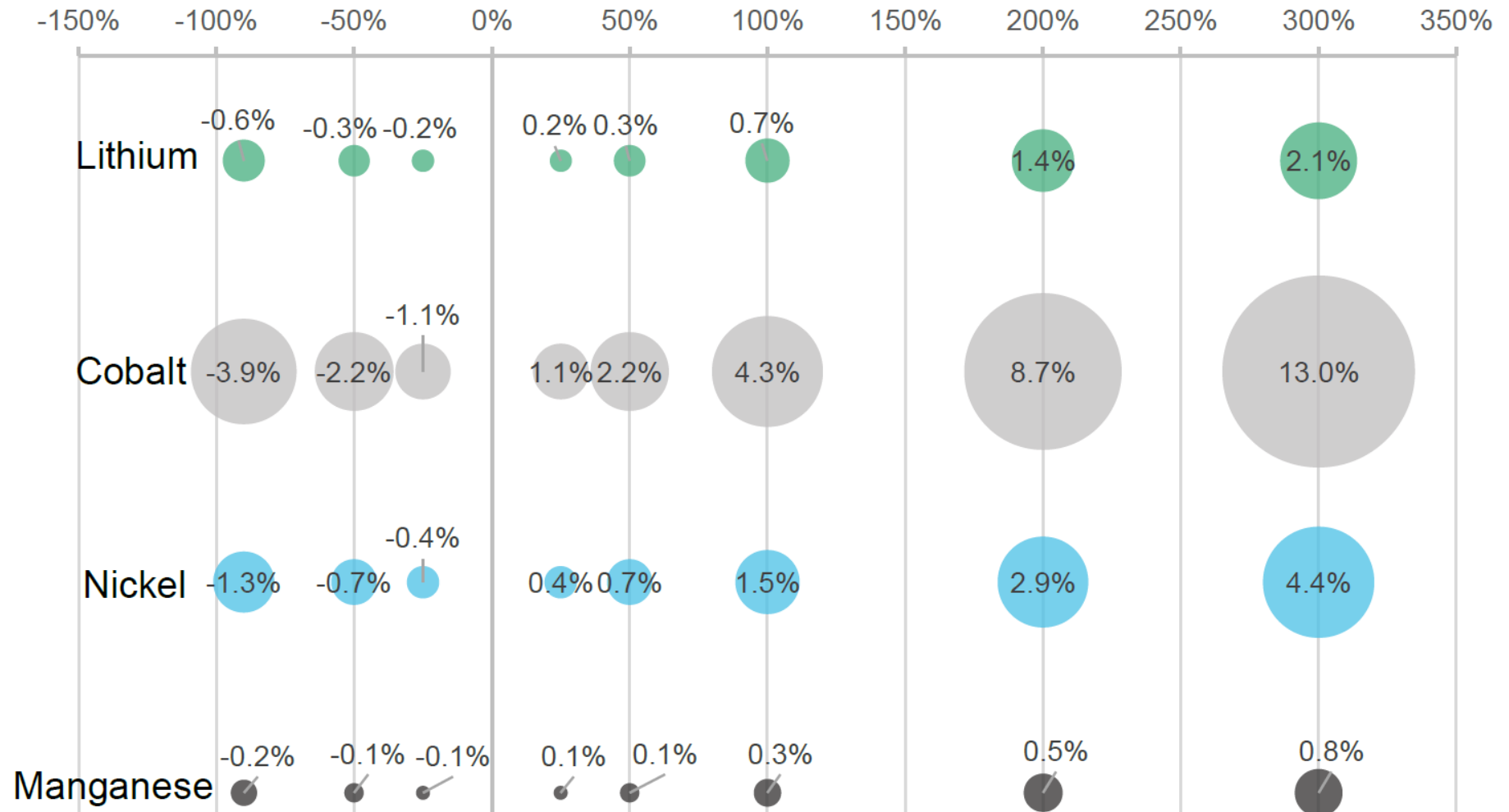
EV fleet size, 2020-40



Source: Bloomberg New Energy Finance, organization websites. Notes: IEA forecasts to 2030 and BP forecasts to 2035. OPEC has not yet published its 2017 Oil Outlook. Only BNEF and OPEC provide annual data points for EV fleet size. Some data points for BP, ExxonMobil, OPEC and the IEA are estimated based on organization charts, reports and data. BNEF, BP and OPEC forecasts include just BEVs and PHEVs. ExxonMobil and IEA forecasts include BEVs, PHEVs and fuel cell vehicles. For more on the changes between BNEF's 2016 and 2017 long-term EV forecasts, see our July 6, 2017 Research Note "Global EV Sales Outlook to 2040" ([web](#) | [terminal](#)).

Impact of raw material price fluctuations on NMC battery pack costs in %

Percentage change in commodity price (%)



Source: Bloomberg New Energy Finance, Note: NMC chemistry modelled here is NMC (111); NMC battery pack cost is \$223/kWh

What else could derail global EV sales?

Area	Likelihood	Impact
Big policy changes in the EU, U.S. or China	Medium	High
Slowdown in lithium-ion battery price declines	Low	High
Mass market interest falls flat	Medium	High
Major technology failure	Low	High
Oil prices fall further	High	Low
Shortage of charging infrastructure	Medium	Medium
Trouble at Tesla	N/A	Medium

Thank you!

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